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Parallel Processing Symposium, 1995. Proceedings., 9th International , 25-28 April 1995

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operation in multiprocessor programs is acquiring a **lock** to protect access to shared data. Typically, the
Typically, the requesting **thread** is blocked if the **lock** it needs is held by another **thread**. The cost of
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Escape Analysis for Java - Choi (1999) (Correct) (53 citations)
(with a median of 19%11% to 92% of all **lock** operations are eliminated in those ten programs
only by garbage collection. Each object has a **lock** associated with it, which is used to ensure mutual
(ii) if an object is accessed only by a single **thread** during its lifetime, so that synchronization
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that can support real-time data streams. ffl **Lock**-free optimistic synchronization is shown to be a
shown to be a practical, efficient alternative to **lock**-based synchronization methods for the
ftp.cs.columbia.edu/reports/reports-1992/cucs-039-92.ps.gz

Compositional Pointer and Escape Analysis for Java Programs - Whaley, Rinard (1999) (Correct) (47 citations)
model. Conceptually, every Java object comes with a **lock**. Each synchronized method ensures that it executes
executes atomically by acquiring and releasing the **lock** in its receiver object. But the **lock** overhead is
for objects that are accessed by only one **thread** and to allocate objects on the stack instead of
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Model Checking Java Programs Using Java PathFinder - Havelund, Pressburger (1998) (Correct) (46 citations)
that are either local to a **thread** or protected by a **lock** owned by the **thread**. This work can be seen as
on the buffer object by a **thread**, the buffer gets **locked** to serve that **thread**, and it is unlocked again
effort to formally analyze, using Spin, a multi-**threaded** operating system for the Deep-Space 1 space
ase.arc.nasa.gov/havelund/Publications/jpf-sttt.ps.Z

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the HEP #16#With full#empty bits# the probe of a **lock** and access of the data word protected by the **lock**
a **lock** and access of the data word protected by the **lock** can be accomplished in one operation. If the
latencies by rapidly switching to other **threads** of computation. The current implementation of
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Removing Unnecessary Synchronization in Java - Bogda, Hölzle (1999) (Correct) (32 citations)
the java virtual machine (JVM) acquires a monitor **lock** on entry to each synchronized method and releases
method and releases it on exit. The monitor **locks** are reentrant, which means the same **thread** can
if an object is reachable only by a single **thread**, concurrent access is impossible and no
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defined a "dag-consistent" memory model which is a **lock-free** consistency model well suited to the needs of
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the PCM .35 2.2.2 The **Thread** Specification Language .36
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Thin Locks: Featherweight Synchronization for Java David F.
problem with a new algorithm that allows **lock** and unlock operations to be performed with only a
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are location independent) and managing concurrency (**locks**) Furthermore, the high procedure call frequency
with runtime primitives supporting naming, **locking**, location, and concurrency control. This model
ffl a shared name space, ffl dynamic **thread** creation, and ffl object level access control. A
www-csag.ucsd.edu/papers/seqeff-popl95.ps

Practical Considerations for Non-Blocking Concurrent Objects - Bershad (1993) (Correct) (26 citations)
or Atomic Exchange. We then evaluate several **locking** strategies that can be used to synthesize a
serializes access within critical sections where **locks** are used to control access. Non-blocking
A non-blocking object can be accessed by many **threads** at a time, yet update protocols based on atomic
www.cs.columbia.edu/~nieh/teaching/e6118_s00/papers/non-blocking.pdf

Fixing the Java Memory Model - Pugh (1999) (Correct) (25 citations)
existing Java memory model discusses use, assign, **lock** and unlock actions: A use action corresponds
(e.g, astore) Java bytecode instruction. A **lock** action corresponds to a monitorenter Java bytecode
Language Specification gives constraints on how **threads** interact through memory. The Java memory model
www.cs.ucsb.edu/conferences/java99/papers/51-pugh.ps

On-The-Fly Detection of Access Anomalies - Schonberg (1989) (Correct) (25 citations)
the Ada rendezvous, barrier synchronization, **lock/unlock** operations, and message passing primitives.
as do across coordination, message send/receive, and **locking** operations, cannot be modeled by synchronous
anomaly occurs when two concurrent execution **threads** both write (or one **thread** reads and the other
ftp.nyu.edu/pub/ultra/ucn/101-150/ucn149.ps.Z

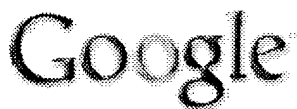
Storage Reclamation and Reorganization in Client-Server.. - Yong, Naughton, Yu (1994) (Correct) (25 citations)
separate buffer pools. We assume a simple two-phase **locking** mechanism with page-level **locking** for
simple two-phase **locking** mechanism with page-level **locking** for concurrency control, and write ahead
logging for crash recovery. The server is multi-**threaded**, with a separate collector **thread** activated to
www.cs.wisc.edu/~jiebing/dataengr.94.2.ps

Performance Evaluation of Two New Disk Scheduling Algorithms .. - Shenze Chen John (1991) (Correct) (23 citations)
with fixed algorithms for concurrency control, **lock** conflict resolution, commit processing, CPU
request re-submit Restart terminate CPU Scheduling **lock** request/release abort commit wait block DB
computational entity (e.g. a task, a process, a **thread**, or a transaction) has a deadline when submitted
ftp.cs.umass.edu/pub/techrept/techreport/1990/UM-CS-1990-077.ps

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... In **heavy lock contention**, C2PL reduces the time locks are held on average ... In **light lock contention**, C2PL holds more locks than is necessary, because it is hard ...

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... exit, so that a single **contention** episode doesn't ... since nobody else can hold // **light lock** or do ... address), (addr | was_heavy)); } else { // Must use **heavy lock**. ...

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... so that a single **contention** episode doesn't ... nobody else can hold + // **light lock** or do ... address), (addr | was_heavy)); + } else + { + // Must use **heavy lock**. ...

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... heavyweight +// status in response to **contention**. Unlike the SGI ... proc (jobject obj) +{ + **heavy_lock** *hl = (h
lock or do this at ...
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